Summer 2006

EnviroNews

THE MEMPHIS DEPOT ENVIRONMENTAL RESTORATION PROGRAM
THE DEPOT
RESTORE, REUSE, REVITALIZE

Dunn Field Update:
Field work completed at Disposal Sites

Environmental contractors completed field work at the Disposal Sites on Dunn Field, achieving an important milestone in the environmental restoration of the former Memphis Depot property.

Cleanup began in March 2005 to remove buried waste and affected soil in the areas of five former disposal sites on the western portion of Dunn Field. The waste materials removed from these sites included empty drums, construction debris, metal and glass. At one site (Site 3), workers unearthed a number of one-quart glass bottles containing clear liquid. Laboratory tests identified the liquid as acidified water containing ortho-toluidine, a compound used to test drinking water for the presence of chlorine.

The field team completed excavation, transportation and disposal (ET&D) of affected soil and debris in early March 2006. Following excavation, the surrounding soils at these sites were tested to confirm that cleanup goals were reached. These health-protective goals are outlined in the Dunn Field Record of Decision (April 2004).

The draft Remedial Action Completion Report for this cleanup activity has been submitted to the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) for review. Upon final approval, the report will be available in the Information Repositories. ❑

Environmental contractors loaded hazardous material from Disposal Site 3 into a lined container for shipment to an appropriate disposal facility.

NEXT RAB MEETING

The Memphis Depot Restoration Advisory Board (RAB) will meet on:

Thursday, October 19, 2006 6 pm

The meeting will be held at the Ruth Tate Senior Citizens Center, located at 1620 Marjorie Street. The public is invited to attend this meeting to learn more about the progress of the Memphis Depot environmental restoration program.

For more information, please call (901) 774-3683.

Looking ahead... milestones for this year and beyond

The cleanup program at the former Memphis Depot has made important strides toward our goals in 2006. With remedial actions now established at several locations on the site, the program is in the final stages of the eight-stage process outlined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

As we continue to achieve these milestones on the cleanup program, the Depot's environmental team is committed to keeping the community informed. Study documents and resources are available at our two Information Repositories. The public is also invited to attend meetings of the Restoration Advisory Board (RAB), which are advertised in the local media.

There's more work ahead, this year and beyond. The environmental cleanup team has set the following schedule to achieve more of these important program milestones:

Summer/Fall 2006
- Complete Disposal Sites Remedial Action Completion Report
- Begin injections to treat affected groundwater in the shallow aquifer beneath the Main Installation

2007
- Complete Dunn Field Source Areas Remedial Design (RD)
- Conduct Dunn Field Source Areas RD Public Briefing
- Begin Dunn Field Source Areas Remedial Action (RA)
- Complete Off-Depot Groundwater RD
- Conduct Off-Depot Groundwater RD Public Briefing

2008
- Receive Operating Properly and Successfully (OPS) determination from the Environmental Protection Agency (EPA) for the Main Installation Remedial Action (RA)
- Begin Off-Depot Groundwater RA
- Conduct a Public Comment Period for the Finding of Suitability to Transfer (FOST) #5 (remainder of MI)

2009
- Operate and maintain the Main Installation RA, Dunn Field Source Areas RA and Off-Depot Groundwater RA

2010
- Receive OPS determination for the Dunn Field Source Areas and Off-Depot Groundwater RAs
- Conduct a Public Comment Period for FOST #6 (remainder of Dunn Field)

This technical schedule is based on current projections and may be subject to change as new information is made available through the field work. Progress updates will be shared through public briefings, community information sessions, media releases, fact sheets and future issues of EnviroNews.

For more information, please contact the Community Relations Office at (901) 774-3683.

Groundwater Clean

Main Installation:

Groundwater Cleanup Continues

In early May 2006, environmental contractors began construction of the remedial action system that will be used to treat affected groundwater in the shallow aquifer beneath the Main Installation (MI).

As outlined in the MI Record of Decision (ROD), the approved remedy for groundwater includes:

- Enhanced Bioremediation Treatment (EBT);
- Monitored Natural Attenuation (MNA); and
- Land use controls to prevent future exposure to groundwater.

The remedy will be used in the shallow groundwater aquifer, which is not a source of drinking water in Memphis/Shelby County.

Enhanced Bioremediation Treatment (EBT)

EBT speeds up a natural process that exists in the environment. Scientists have discovered there are naturally occurring organisms present in the environment that can break down chlorinated solvents in groundwater, and turn them into safe, natural compounds. This process is known as bioremediation.

EBT will be used to treat groundwater in two areas in the shallow aquifer where concentrations of solvents are the highest. In the southwest corner of the MI (Treatment Area 1), 37 injection wells are being installed to introduce an organic nutrient, sodium lactate, into the groundwater. In the southeast corner (Treatment Area 2) just west of the Memphis Police Department's Southeast Precinct, 12 injection wells are being installed.

Construction of the injection systems is scheduled to be completed in October 2006, immediately followed by injections of sodium lactate. The injections are planned for two years and will occur bi-weekly during the first year and monthly during the second year. The cleanup goals in the EBT areas are expected to be achieved by the end of the second year.

During a year-long pilot study completed in 2003, the Depot's environmental team set up two test sites where organic nutrients were injected into the groundwater. Vegetable oil was used at one site and sodium lactate was used at the other to compare the effectiveness of the substances. The results of the study showed that multiple injections of sodium lactate, a common food-grade additive, will be the most effective solution for treating solvents in the shallow aquifer beneath the MI.

Monitored Natural Attenuation (MNA)

Monitored Natural Attenuation (MNA) is being used to treat groundwater containing low levels of solvents or Chlorinated Volatile Organic Compounds (CVOCS) in the shallow aquifer beneath the MI. MNA will complement the EBT being used in areas where the shallow aquifer has higher concentrations of solvents.

Natural attenuation relies on natural processes to clean up or 'attenuate' substances detected in soil and groundwater. MNA makes use of natural processes to reduce the concentration and amount of compounds in groundwater. MNA may improve environmental conditions in several ways:

- breaking down chemicals into individual components through biodegradation;
- reducing concentrations through dilution, dispersion or evaporation; or
- binding substances to soil through absorption so that the compounds in the environment do not spread or move off-site.

The cleanup goals in the MNA areas are expected to be achieved after eight years.

What are CVOCs?

Chlorinated Volatile Organic Compounds (CVOCs) are substances that evaporate (or 'volatize') quickly in the air. CVOCs are found in many cleaning products, fuels and degreasing agents for industrial and household use. CVOCs are also present in a wide range of common products including gasoline, paint thinner, dry-cleaning agents, and other solvents.

Land Use Controls

As part of the groundwater remedy for the Main Installation, land use controls are in place to prevent exposure to the affected groundwater. These controls are used to restrict certain activities on the site, such as the drilling of drinking-water wells. Land use controls will ensure the Main Installation remains protective of human health and the environment over the long term.

The Notice of Land Use Restrictions was recorded in the Permanent Record Archives of the Office of the Shelby County Register on January 26, 2005 and is available for public review online in the Administrative Record (AR). To access the AR, go to www.adminrec.com/DLA.asp, click on the Memphis tab and search for documents under 'Quick Search.'

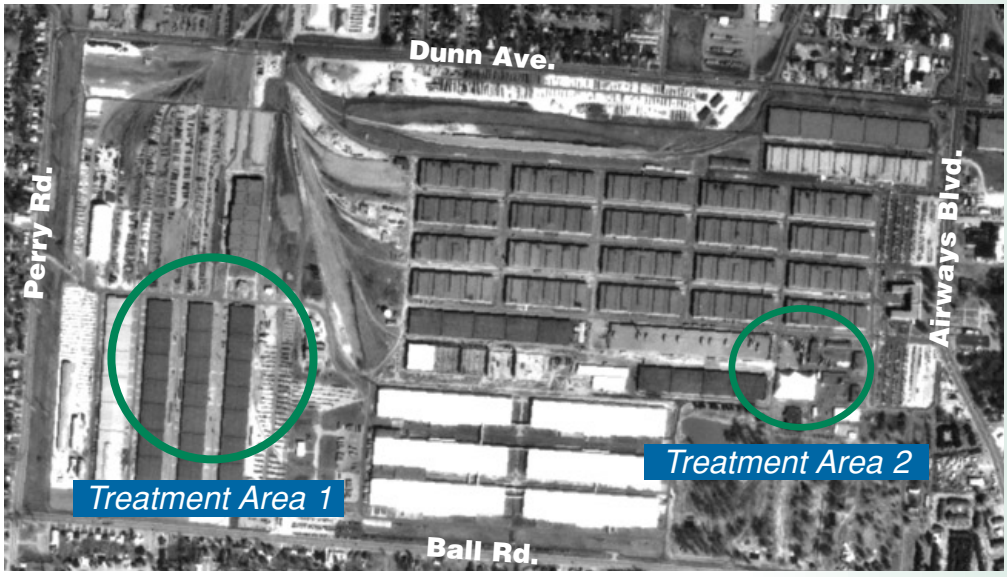
Reporting:

The environmental contractors will prepare an Interim Remedial Action Completion Report after the EBT injection system has been constructed, the first year of injections have been completed, and EBT and MNA have been determined to be operating properly and successfully. The report must be reviewed and approved by the U.S. Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC). The approved final report will be placed in the Depot's Information Repositories.

The EPA and TDEC will review the effectiveness of this remedy at five-year intervals, until the remedial goals identified in the MI ROD have been achieved, to ensure the site continues to be safe for future use.

The MI ROD, Remedial Design and Remedial Action Work Plan are available for public review online in the Administrative Record and in the Depot's Information Repositories.

For more information about these remedial action initiatives, please contact the Depot's Community Relations Office at (901) 774-3683. ❑



This aerial photo of the Main Installation identifies the two areas where Enhanced Bioremediation Treatment (EBT) will be used to treat groundwater in the shallow aquifer beneath the Main Installation.

...up Moving Ahead!

Dunn Field:

Permeable Reactive Barrier:

Groundwater cleanup technology tested on Dunn Field

As part of the cleanup remedy for affected groundwater, the environmental team is now conducting a Zero-Valent Iron (ZVI) Permeable Reactive Barrier (PRB) implementation study in an area west of Dunn Field.

The pilot study PRB was installed in May 2006 along a vacant lot located west of Rozelle Street and south of the Canadian National railroad tracks.

As outlined in the Dunn Field Record of Decision (ROD), the installation of a PRB is one of the major components of the selected remedy to treat affected groundwater. PRBs have been implemented at other sites across the country. The technology has proven to be safe and effective in reducing levels of chlorinated volatile organic compounds (CVOCs) in groundwater.

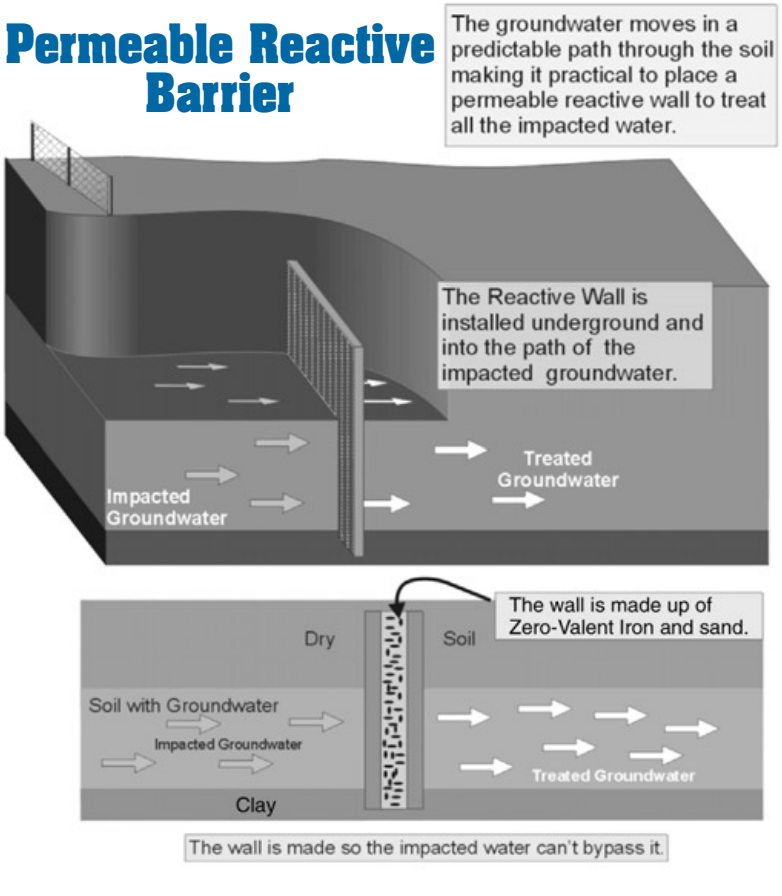
The study is being conducted to test the jet grouting or "jetting" method for installing the PRB approximately 75 feet below ground surface. The environmental team will also analyze the potential effect of the PRB on groundwater conditions.

A PRB is a permeable wall filled with a mixture of ZVI and sand particles. Through a natural chemical reaction process called 'oxidation', the ZVI will reduce solvents into safe compounds that degrade over time. The PRB in this study has been installed approximately 75 feet below ground surface, across the natural flow path of impacted groundwater west of Dunn Field. It is approximately 50 feet long and eight feet high. With the pilot study PRB now in place, environmental contractors are conducting six months of groundwater sampling to monitor its effectiveness.

The results of the pilot study will be used to complete the Off-Depot Groundwater Remedial Design (RD), which will define the technical specifications and schedule for the groundwater remedy. The RD, which is expected to be completed in Summer 2007, will present the location where the full-scale PRB will be installed. A public briefing is also being planned for Winter 2007 to share up-to-date information on this remedy with the community.

The Dunn Field ROD and other documents relating to this study are available for public review in the Depot's Information Repositories located at the Cherokee Branch Library and the Memphis Depot Business Park.

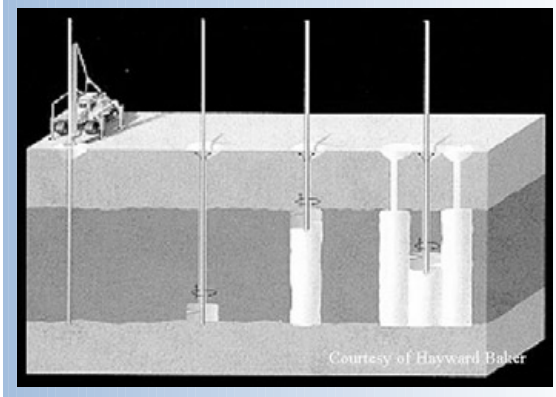
For more information on the use of PRBs to clean up CVOCs in groundwater at various sites in the U.S., please visit the following United States Environmental Protection Agency (EPA) website:
www.epa.gov/tio/download/rtdf/2-prbperformance_web.pdf



What is Jet Grouting?

Jet grouting or "jetting" is the construction method that was tested to install the pilot study Permeable Reactive Barrier (PRB) west of Dunn Field.

In the jetting process, Zero-Valent Iron (ZVI) is installed in columns that are created in the ground. High-pressured jets remove or mix the soil with a ZVI-based mixture to stabilize soil and keep the material in place.



What's new at your local Information Repository?

Need to check a document or find more information on the environmental cleanup program at the Memphis Depot? You'll find technical documents, meeting minutes, historical files and other data at our two public Information Repositories, located in the Depot community.

Memphis/Shelby County Public Library Cherokee Branch,

3300 Sharpe Ave.
Mon. to Thurs. 10 a.m. to 6 p.m.
Sat. 10 a.m. to 6 p.m.
Closed Friday and Sunday.

The Memphis Depot Community Reading Room

Building 144, 2163 Airways Blvd.
Please call ahead for an appointment: 774-3683

New documents

The following documents have been added to the Information Repositories:

- **Zero-Valent Iron Permeable Reactive Barrier Implementation Study Work Plan,** Rev. 1, April 2006, CH2M Hill/U.S. Army Corps of Engineers.

The Memphis Depot
Building 144
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FOR YOUR INFORMATION.....

The Information Repositories are at the following locations:

The Memphis Depot Business Park,
2163 Airways Blvd., Memphis, TN (901) 774-3683
The Community Outreach Room is located in Building 144. Please call ahead for an appointment to ensure that we are available to help you.

Memphis/Shelby County Public Library,
Cherokee Branch, 3300 Sharpe Ave.,
Memphis, TN (901) 743-3655
The Cherokee Branch is open Monday to Thursday from 10 a.m. to 6 p.m. and Saturday from 10 a.m. to 6 p.m. Closed on Friday & Sunday.

HOW TO REACH US....

If you have any questions or comments about the Depot's environmental cleanup program, please feel free to contact any one of the following:

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Visit the Depot's website at www.ddc.dla.mil/memphis

EnviroNews is published by the Memphis Depot to update the public on the environmental cleanup program. If you have comments, questions, or suggestions for future articles, please call Ms. Alma Black Moore at (901) 774-3683